D. Remarks

The claims are 1, 3 and 8-17, with claims 1 and 14 being independent. Claims 2 and 4-7 have been cancelled. The independent claims have been amended to better define the present invention. Support for this amendment may be found throughout the specification and the Examples. Claims 8-10 have been amended to improve their form. New claims 15-17 have been added, as supported by, for example, original claims 4-7. The specification has been amended to correct a clear typographical error. No new matter has been added.

Claims 1, 2 and 8-14 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 6,381,079 B1 (Ogawa). Claims 3-7 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious from Ogawa in view of U.S. Patent No. 6,061,110 (Hisatake). The grounds for rejection are respectfully traversed.

Prior to addressing the merits of rejection, Applicant would like to briefly review some of the key features and advantages of the presently claimed invention. That invention is directed, in part, to an optical material in which $n_d > -6.667\times10^{-3}\nu_d + 1.70$ and $\theta_{g,F} \leq -2\times10^{-3}\nu_d + 0.59$. Importantly, the Abbe number, ν_d, is 22.7 or less. Thus, the dispersion of an optical material is increased, further differentiating the optical material from the low dispersion material. This enables the production of optical elements having novel diffraction properties.

Applicant respectfully submits that Ogawa fails to disclose or suggest such optical materials. Ogawa discloses optical materials for a negative lens in which the Abbe

number is 27-50 or 26.7, as mentioned in Numerical Example 1. These Abbe numbers are different from those presently claimed.

Furthermore, Ogawa discloses the following three conditions for optical materials:

(a) $n_d > -6.667\times10^{-3}\nu_d + 1.70$

(b) $\theta_{g,F}$ is less than 0.61 or less than 0.591

(c) Abbe number is 27-50.

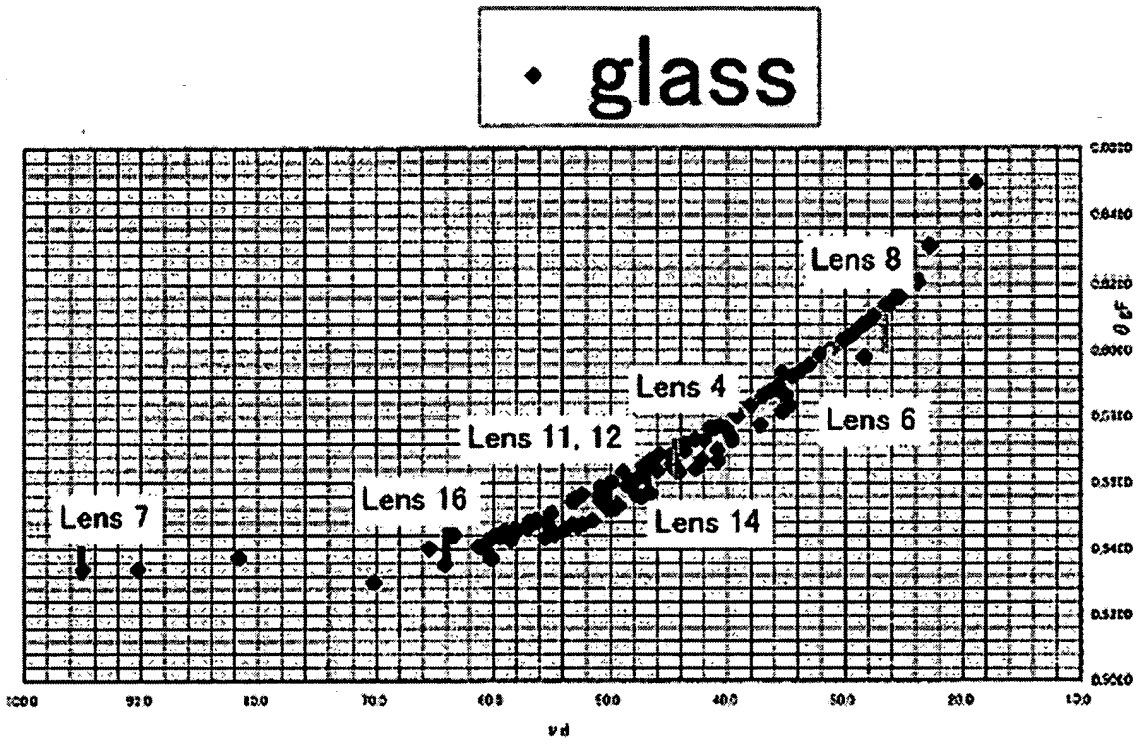
However, Ogawa fails to disclose or suggest an optical material, which satisfies all three of these conditions. The plot of the Abbe number and estimated second order dispersion of lenses 4, 6-8, 11, 12, 14 and 16 in Ogawa's Numerical Example 1 shows that neither one of the lenses satisfies both conditions (b) and (c):[1]

1/ This graph was plotted based on the data obtained from a website of OHARA Inc. (http://www.ohara-inc.co.jp/b/b02/b0201_op/b0201.htm). An excerpt from this table is attached. The graph representing the characteristics of lenses 4, 6-8, 11, 12, 14 and 16 was plotted using their Abbe numbers to show the approximate second order dispersion.

Optical materials of other manufacturers show the same distribution of the optical characteristics as the plot shown below, although the exact refractive indices and Abbe numbers may vary slightly according to the determination methods and the amounts of impurities present in the material.

When a person of ordinary skill in the art knows the refractive index and the Abbe number of an optical material, the second order dispersion of the material can be determined from the table. Even if the optical material is not specifically identified, the range of the second order dispersion can be obtained from the Abbe number.

In Ogawa, the refractive index and the Abbe number of the optical material of each lens is shown in Numerical Example 1. Thus, one can determine the second order dispersion from the attached table. For example, lens 7 has the same (or almost the same) characteristics as S-FPL53 (ν_d=95.1 and n_d=1.43387). Therefore, the second order dispersion should be 0.534. The second order dispersion can be determined for the other lenses in the same manner.


· glass
Lens 8
Lens 4
Lens 6
Lens 11, 12
Lens 16
Lens 14
Lens 7
θg,F
νd

To the contrary, the materials as presently claimed are able to satisfy the above-stated conditions a) and b) and also have the Abbe number, which is not more than 22.7. This is clearly different from conventional materials shown in the above plot or Figs. 1 and 2 in the subject application. Therefore, Applicant respectfully submits that Ogawa cannot affect the patentability of the presently claimed invention.

Hisatake discloses an optical material for a transparent refractive index medium used in a reflecting type liquid crystal display device. Like Ogawa, Hisatake fails to disclose or suggest the Abbe number as presently claimed in combination with the other claimed features.

Furthermore, Hisatake fails to teach particles as presently claimed. Hisatake teaches that the optical material may contain ITO or polystyrene in a resin, such as an acrylic resin, to enhance light diffusion and improve visual properties of the liquid crystal display. In general, in order to enhance light diffusion, the size of the particles in a resin should be at least 100 nm. That is, it is well-known that particle size should be at least 1/10 of the light wavelength to be diffused, although Hisatake does not particularly mention the particle size. When the particle size is less than 100 nm or less than 1/10 of the light wavelength to be diffused, the diffraction rate of the particles and the resin cannot be differentiated. This leads to a uniform diffraction rate, and light diffusion properties cannot be improved.

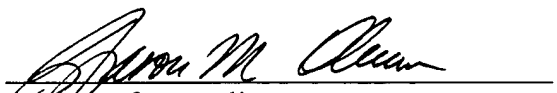
In the present invention, the inorganic particles contained in the optical material are on a nanometer scale, e.g., 2-50 nm, too small to cause light diffusion. Therefore, since the particles in Hisatake must enhance diffusion and therefore are at least 100 nm or at least 1/10 of the light wavelength, Hisatake fails to disclose or suggest the presently claimed particles.

In conclusion, Applicant respectfully submits that Ogawa and Hisatake, whether considered separately or in combination, do not disclose or suggest the presently claimed elements.

Wherefore, Applicant respectfully requests withdrawal of the outstanding rejections and passage to issue of the subject application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



Attorney for Applicant
Jason M. Okun
Registration No. 48,512

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

NY_MAIN 452551v1

Recommended glasses

	Glass	n_d	ν d	θ g, F			Glass	n_d	ν d	θ g, F
1	**S-FPL51**	1.496999	81.6	0.5375		57	**S-TIH 1**	1.717362	29.5	0.6047
2	**S-FPL52**	1.455999	90.3	0.5340		58	**S-TIH 3**	1.739998	28.3	0.6079
3	**S-FPL53**	1.438750	95.0	0.5340		59	**S-TIH 4**	1.755199	27.5	0.6103
4	**S-FSL 5**	1.487490	70.2	0.5300		60	**S-TIH 6**	1.805181	25.4	0.6161
5	**S-BSL 7**	1.516330	64.1	0.5353		61	**S-TIH10**	1.728250	28.5	0.6077
6	**S-BSM 2**	1.607379	56.8	0.5483		62	**S-TIH11**	1.784723	25.7	0.6161
7	**S-BSM 4**	1.612716	58.7	0.5449		63	**S-TIH13**	1.740769	27.8	0.6095
8	**S-BSM9**	1.614047	55.0	0.5508		64	**S-TIH14**	1.761821	26.5	0.6136
9	**S-BSM10**	1.622799	57.0	0.5464		65	**S-TIH18**	1.721507	29.2	0.6053
10	**S-BSM14**	1.603112	60.7	0.5415		66	**S-TIH23**	1.784696	26.3	0.6135
11	**S-BSM15**	1.622992	58.2	0.5458		67	**S-TIH53**	1.846660	23.8	0.6205
12	**S-BSM16**	1.620411	60.3	0.5427		68	**S-LAL 7**	1.651597	58.5	0.5425
13	**S-BSM18**	1.638539	55.4	0.5484		69	**S-LAL 8**	1.712995	53.9	0.5459
14	**S-BSM22**	1.622296	53.2	0.5542		70	**S-LAL 9**	1.691002	54.8	0.5449
15	**S-BSM25**	1.658441	50.9	0.5560		71	**S-LAL10**	1.719995	50.2	0.5521
16	**S-BSM28**	1.617722	49.8	0.5603		72	**S-LAL12**	1.677900	55.3	0.5472
17	**S-BSM71**	1.648498	53.0	0.5547		73	**S-LAL13**	1.693501	53.2	0.5473
18	**S-BSM81**	1.639999	60.1	0.5370		74	**S-LAL14**	1.696797	55.5	0.5434
19	**S-NSL 3**	1.518229	59.0	0.5457		75	**S-LAL18**	1.729157	54.7	0.5444
20	**S-NSL 5**	1.522494	59.8	0.5440		76	**S-LAL54**	1.650996	56.2	0.5482
21	**S-NSL36**	1.517417	52.4	0.5564		77	**S-LAL56**	1.677898	50.7	0.5557
22	**S-BAL 2**	1.570989	50.8	0.5588		78	**S-LAL58**	1.693495	50.8	0.5546
23	**S-BAL 3**	1.571351	53.0	0.5553		79	**S-LAL59**	1.733997	51.5	0.5486
24	**S-BAL11**	1.572501	57.8	0.5456		80	**S-LAL61**	1.740999	52.7	0.5467
25	**S-BAL12**	1.539956	59.5	0.5441		81	**S-LAM 2**	1.743997	44.8	0.5655
26	**S-BAL14**	1.568832	56.3	0.5489		82	**S-LAM 3**	1.717004	47.9	0.5605
27	**S-BAL35**	1.589130	61.2	0.5407		83	**S-LAM 7**	1.749497	35.3	0.5869
28	**S-BAL41**	1.563839	60.7	0.5402		84	**S-LAM51**	1.699998	48.1	0.5596
29	**S-BAL42**	1.583126	59.4	0.5434		85	**S-LAM52**	1.720000	43.7	0.5699
30	**S-BAM 3**	1.582673	46.4	0.5671		86	**S-LAM54**	1.756998	47.8	0.5565
31	**S-BAM 4**	1.605620	43.7	0.5721		87	**S-LAM55**	1.762001	40.1	0.5765
32	**S-BAM12**	1.639300	44.9	0.5683		88	**S-LAM58**	1.720000	42.0	0.5729
33	**S-BAH10**	1.670029	47.3	0.5627		89	**S-LAM59**	1.697002	48.5	0.5589
34	**S-BAH11**	1.666718	48.3	0.5609		90	**S-LAM60**	1.743198	49.3	0.5531
35	**S-BAH27**	1.701536	41.2	0.5765		91	**S-LAM61**	1.720002	46.0	0.5635
36	**S-BAH28**	1.723420	38.0	0.5836		92	**S-LAM66**	1.800999	35.0	0.5864
37	**S-BAH32**	1.669979	39.3	0.5814		93	**S-LAH51**	1.785896	44.2	0.5631
38	**S-PHM52**	1.618000	63.4	0.5441		94	**S-LAH52**	1.799516	42.2	0.5672
39	**S-PHM53**	1.603001	65.5	0.5401		95	**S-LAH53**	1.806098	40.9	0.5701
40	**S-TIL 1**	1.548141	45.8	0.5686		96	**S-LAH55**	1.834807	42.7	0.5642
41	**S-TIL 2**	1.540720	47.2	0.5651		97	**S-LAH58**	1.882997	40.8	0.5667
42	**S-TIL 6**	1.531717	48.9	0.5631		98	**S-LAH59**	1.816000	46.6	0.5568
43	**S-TIL25**	1.581439	40.7	0.5774		99	**S-LAH60**	1.834000	37.2	0.5776
44	**S-TIL26**	1.567322	42.8	0.5731		100	**S-LAH63**	1.804398	39.6	0.5729
45	**S-TIL27**	1.575006	41.5	0.5767		101	**S-LAH64**	1.788001	47.4	0.5559
46	**S-TIM 1**	1.625882	35.7	0.5893		102	**S-LAH65**	1.804000	46.6	0.5571
47	**S-TIM 2**	1.620041	36.3	0.5879		103	**S-LAH66**	1.772499	49.6	0.5520
48	**S-TIM 3**	1.612929	37.0	0.5862		104	**S-LAH79**	2.003300	28.3	0.5980
49	**S-TIM 5**	1.603420	38.0	0.5835		105	**S-YGH51**	1.754999	52.3	0.5475
50	**S-TIM 8**	1.595509	39.2	0.5803		106	**S-FTM16**	1.592701	35.3	0.5933
51	**S-TIM22**	1.647689	33.8	0.5938		107	**S-NBM51**	1.613397	44.3	0.5633
52	**S-TIM25**	1.672700	32.1	0.5988		108	**S-NBH 5**	1.654115	39.7	0.5737
53	**S-TIM27**	1.639799	34.5	0.5922		109	**S-NBH 8**	1.720467	34.7	0.5834
54	**S-TIM28**	1.688931	31.1	0.6004		110	**S-NBH51**	1.749505	35.3	0.5818
55	**S-TIM35**	1.698947	30.1	0.6030		111	**S-NPH 1**	1.808095	22.8	0.6307
56	**S-TIM39**	1.666800	33.0	0.5957		112	**S-NPH 2**	1.922860	18.9	0.6495